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(11) Publication number:

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**PATENT ABSTRACTS OF JAPAN**(21) Application number: **08222113**(51) Int'l. Cl.: **H01M 4/62 H01M 4/02 H01M 10/40**(22) Application date: **23.08.96**

(30) Priority:

(43) Date of application publication: **06.03.98**

(84) Designated contracting states:

(71) Applicant: **MATSUSHITA ELECTRIC IND CO LTD**(72) Inventor: **MURAOKA NORIKI  
OZAKI YOSHIYUKI  
KOBAYASHI SHIGEO**

(74) Representative:

**(54) NONAQUEOUS  
ELECTROLYTE  
SECONDARY BATTERY****(57) Abstract:**

**PROBLEM TO BE SOLVED:** To suppress temperature rising of a battery caused by short circuit by incorporating a heat absorbing material of a polymer compound having the specified melting point and heat of fusion and a binder such as styrene - butadiene rubber in a negative electrode of a nonaqueous electrolyte secondary battery.

**SOLUTION:** A nonaqueous electrolyte secondary battery has a positive electrode using a lithium containing composite oxide as an active material, a negative electrode comprising a carbon material capable of absorbing/releasing lithium, and a nonaqueous electrolyte. A polymer compound having a melting point of 90-130°C and a heat of fusion of 30J/g or more (such as polyethylene, polypropylene, and ethylene - ethyl acrylate - maleic anhydride copolymer) is contained in the negative electrode as a heat absorbing material, and has a

globular shape of a mean particle size of 1-12 $\mu$ m, and the added content is 10% or less. As a binder, styrene - butadiene rubber, polyvinylidene fluoride, or polytetrafluoroethylene, etc., is contained in the negative electrode. The nonaqueous electrolyte secondary battery capable of satisfying battery characteristics and suppressing temperature rising of the battery when short circuit of the battery arose on the inside and the outside.

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Title: **JP10064548A2: NONAQUEOUS ELECTROLYTE SECONDARY BATTERY**  
 ► Want to see a more descriptive title highlighting what's new about this invention?

Country: JP Japan  
 Kind: A

Inventor(s): MURAOKA NORIKI  
 OZAKI YOSHIYUKI  
 KOBAYASHI SHIGEO

Applicant/Assignee:  
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Issued/Filed Dates: March 6, 1998 / Aug. 23, 1996

Application Number: **JP1996000222113**

IPC Class: **H01M 4/62; H01M 4/02; H01M 10/40;**  
 ► Interested in classification by use rather than just by description?

Priority Number(s): Aug. 23, 1996 **JP1996000222113**

Abstract:



**Problem to be solved:** To suppress temperature rising of a battery caused by short circuit by incorporating a heat absorbing material of a polymer compound having the specified melting point and heat of fusion and a binder such as styrene - butadiene rubber in a negative electrode of a nonaqueous electrolyte secondary battery.  
**Solution:** A nonaqueous electrolyte secondary battery has a positive electrode using a lithium containing composite oxide as an active material, a negative electrode comprising a carbon material capable of absorbing/releasing lithium, and a nonaqueous electrolyte. A polymer compound having a melting point of 90-130° C and a heat of fusion of 30J/g or more (such as polyethylene, polypropylene, and ethylene - ethyl acrylate - maleic anhydride copolymer) is contained in the negative electrode as a heat absorbing material, and has a globular shape of a mean particle size of 1-12μm, and the added content is 10% or less. As a binder, styrene - butadiene rubber, polyvinylidene fluoride, or polytetrafluoroethylene, etc., is contained in the negative electrode. The nonaqueous electrolyte secondary battery capable of satisfying battery characteristics and suppressing temperature rising of the battery when short circuit of the battery arose on the inside and the outside.

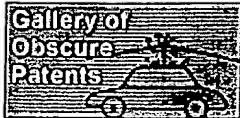
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Other Abstract Info: CHEMABS 128(16)194742Y CAN128(16)194742Y DERABS C98-222646  
DERC98-222646

Foreign References: No patents reference this one

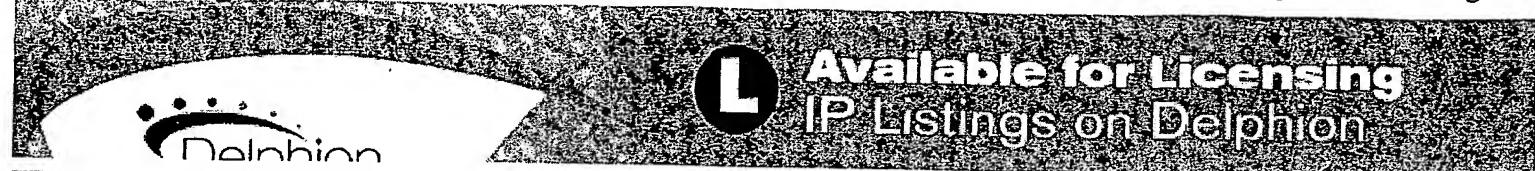


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**Non-aqueous electrolyte secondary lithium battery - has cathode which comprises compound with predetermined enthalpy of fusion and melting point and binder**

Assignee: **MATSUSHITA DENKI SANGYO KK** Standard company (MATU...)

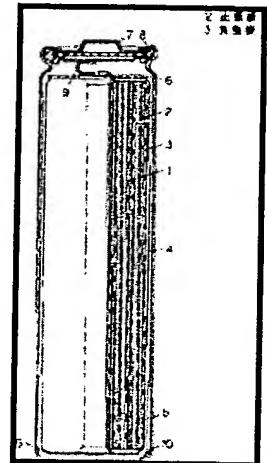
Inventor(s): **none**

Accession / Update: **1998-222646 / 199820**

IPC Class: **H01M 4/62 ; H01M 4/02 ; H01M 10/40 ;**

Derwent Classes: **A85; L03; X16;**

Manual Codes: **A12-E06A(Electrodes) , L03-E01C(Electrolytes) , X16-B01F1(Lithium-based) , X16-E09(Other electrode aspects)**



Derwent Abstract

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(JP10064548A) The battery has an anode (2) which consists of lithium oxide as active material. A cathode (3) comprises lithium and carbon material. The cathode and anode are kept immersed in non-aqueous electrolyte. The cathode comprises a heat absorber and a binder. A compound whose enthalpy of fusion is more than 30 J/g and melting point is about 90-130 deg. C is used as the heat absorber. One substance selected from styrene-butadiene rubber, polyvinylidene fluoride, tetrafluoroethylene hexafluoride propylene copolymer and acrylonitrile-butadiene rubber is used as the binder. **Advantage** - Suppresses temperature rise during short circuit. Improves battery characteristics.

Abstract info: [JP10064548A: Dwg.1/1](#)

Images:

Family: **Patent** **Issued** **DW Update** **Pages** **Language** **IPC Class**  
JP10064548A \* March 06, 1998 199820 7 English H01M 4/62  
 Local appls.: JP1996000222113 ApplDate:1996-08-23 (96JP-0222113)

Priority Number(s):

Application Number	Application Date	Original Title
JP1996000222113	Aug. 23, 1996	NONAQUEOUS ELECTROLYTE SECONDARY BATTERY

Extended Polymer Index:

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Related Accessions:

Accession	Type	Derwent Update	Derwent Title
C1998-070101	C		
N1998-176503	N		
2 items found			

Title Terms: NON AQUEOUS ELECTROLYTIC SECONDARY LITHIUM BATTERY CATHODE COMPRISE COMPOUND PREDETERMINED ENTHALPY FUSE MELT POINT BIND

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